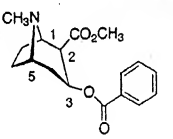
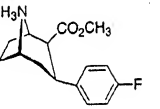
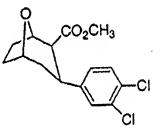


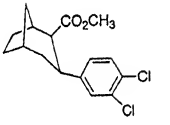
Cocaine



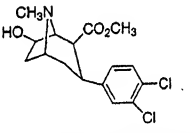
WIN 35,428



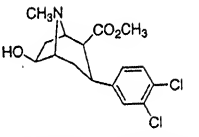
2β-Carbomethoxy-3β-(3,4-dichlorophenyl)-8-oxabicyclo[3.2.1]octane



2β-Carbomethoxy-3β-(3,4-dichlorophenyl)-bicyclo[3.2.1]octane



2β-Carbomethoxy-3β-(3,4-dichlorophenyl)-7β-hydroxy-8-methyl-8-azabicyclo[3.2.1]octane



2β-Carbomethoxy-3β-(3,4-dichlorophenyl)-6β-hydroxy-8-methyl-8-azabicyclo[3.2.1]octane

Figure 1. Structures of Lead Bicyclo[3.2.1]octanes

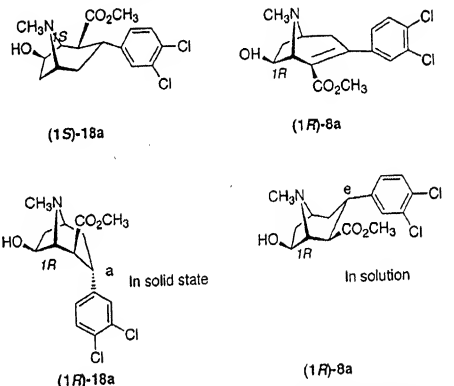
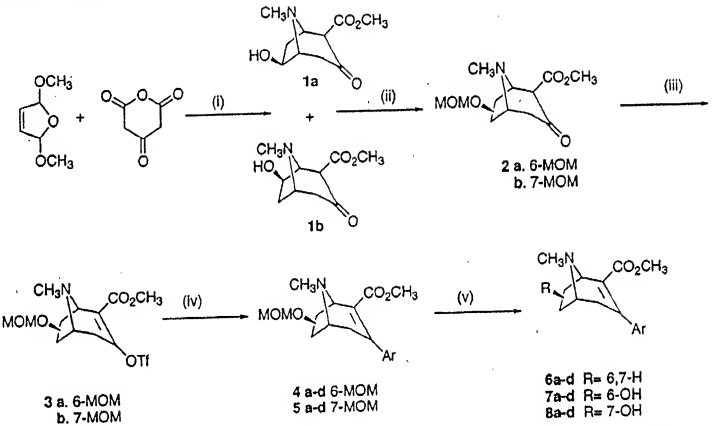


Figure 2. Absolute Configurations of (1*R*)-8a, (1*R*)-18a, (1*S*)-18a

Figure 3

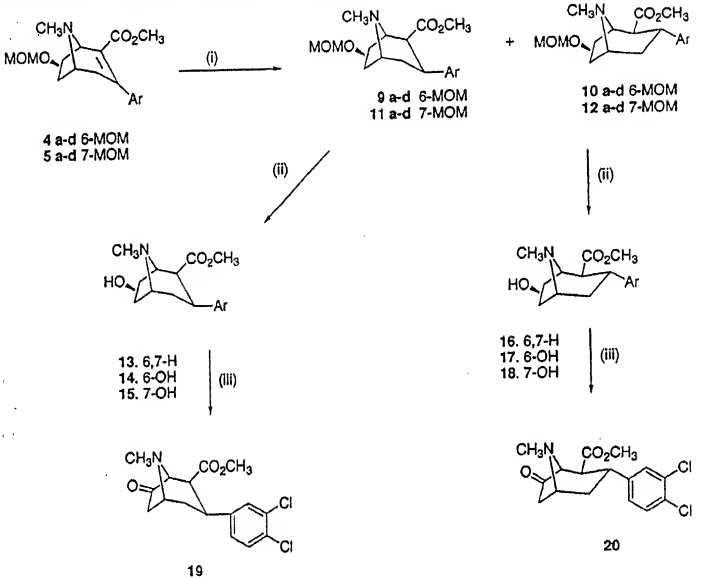
Scheme 1. Synthetic Route to 2,3-Unsaturated Tropanes[a]



[a] Reagents: (i) H_2NCH_3; (ii) $CH_2(OCH_3)_2$, pTSA; (iii) $NaN(TMS)_2$, $PhNTf_2$; (iv) $Pd_2(dba)_3$, $ArB(OH)_2$; (v) TMSBr.

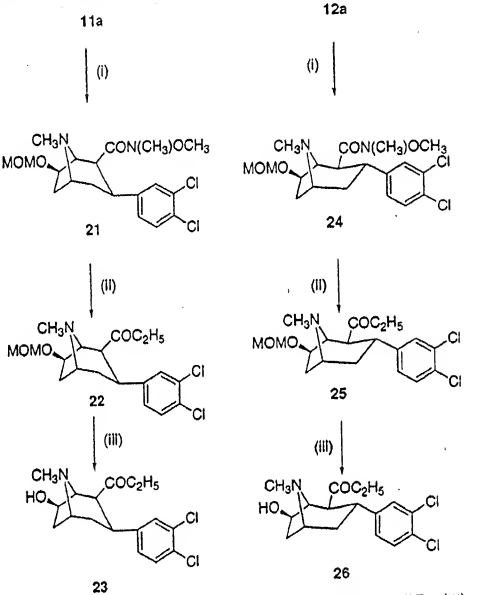
Figure 4

Scheme 2. Synthetic Route to Bridge Oxygenated Tropanes[a]



[a] Reagents: (i) SmI_2; (ii) TMSBr, CH_2Cl_2; (iii) *N*-CH_3-morpholine-*N*-oxide, tetra-*n*-propylammoniumperruthenate.

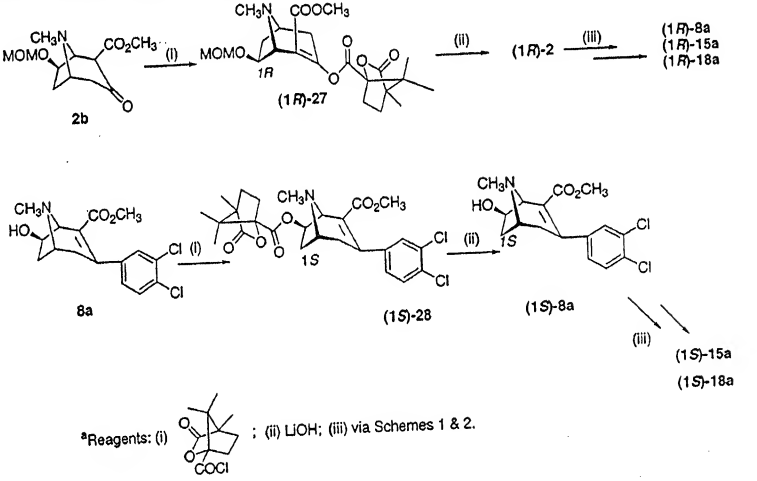
Scheme 3. Synthetic Route to Bridge Oxygenated 2-Keto Tropanes[a]



[a] Reagents: (i) $HN(CH_3)OCH_3$ $Al(CH_3)_3$; (ii) ETMgBR; (iii) TMSBR, CH_2Cl_2.

Figure 6

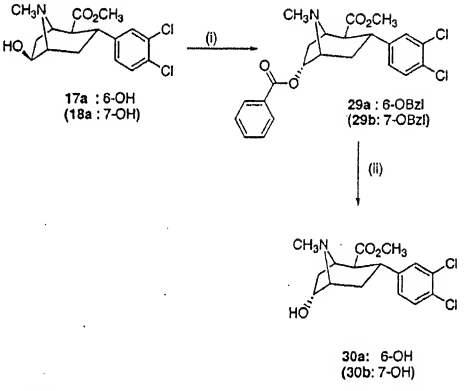
Scheme 4. Resolution of 8A, 15A, and 18A[a]



[a]Reagents: (i) ; (ii) LiOH; (iii) via Schemes 1 & 2.

Figure 7

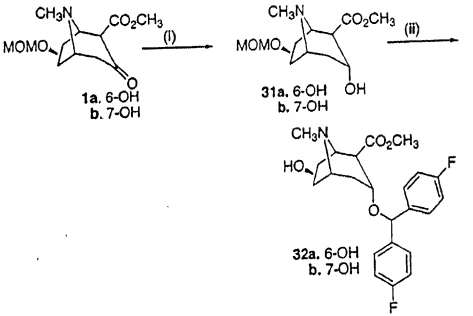
Scheme 5. Inversion at C6 and C7[a]



[a] Reagents: (i) C_6H_5COOH, Ph_3P, DEAD; (ii) LiOH, THF.

Figure 8

Scheme 6. Synthesis of Diarylmethoxy Tropanes[a]



[a] Reagents: (i) $NaBH_4$; (ii) 4,4'-difluorobenzhydrol, *p*TSA.